

**ERROR DETECTION IN USER INPUT DEVICE  
USING GENERAL PURPOSE INPUT-OUTPUT**

**ABSTRACT OF THE DISCLOSURE**

A method and apparatus for using a general purpose input-output (GPIO) interface to test a user input device such as a wireless keyboard or mouse. Operation of the key-scan logic can be tested by the GPIO interface by temporarily disconnecting the outputs of the various rows and columns and substituting signals generated by a test algorithm into the input terminals of the key-scan logic. The test signal is processed by the key scan circuitry and a key-scan output signal is generated. This key-scan output signal is then compared to a known reference output signal to determine if the key-scan logic and associated circuitry is operating properly. In another embodiment, the GPIO testing system operates in conjunction with other user devices such as a computer mouse/scrolling device. In this embodiment, optical or mechanical sensors generate motion information signals that are provided to quadrature state change detection circuitry that is operable to provide a position change interrupt signal indicating movement of the mouse/scrolling device. The GPIO testing system is operable to temporarily disable the motion information signals and a plurality of test signals are provided by the GPIO to the input of the quadrature state change detection circuitry. The test signal is processed by the quadrature state change detection circuitry and a quadrature output signal is generated. This quadrature output signal is then compared to a known reference output signal to determine if the quadrature state change detection circuit and associated circuitry is operating properly.